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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/537,587

**Applicant(s)**

WATANABE ET AL.

**Examiner**

TRACIE Y. GREEN

**Art Unit**

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### Response to Amendment

1. Receipt is acknowledged of applicant's amendment filed 07/21/2008. Claims 1-34 are pending and an action on the merits is as follows.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-7, 11-17, and 25-28 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727).

**Regarding Claims 1-2, Yorikatsu et al. (Yorikatsu, hereafter)**, teaches An alkali metal generating agent (Column 1, lines 24-28) as a supply source of an alkali metal used in formation of a photo-cathode (Column 1, lines 29-31) for emitting a photoelectron corresponding to incident light or a secondary-electron emitting surface (Column 12, lines 25-30) for emitting secondary electrons corresponding to an incident electron, said alkali metal generating agent (Table 1, Column 1) comprising: an oxidizer (column 1, lines 35-38) with an alkali metal ion as a counter cation; and a reducer

(column 1, lines 40-41) for initiating a redox reaction with the oxidizer at a predetermined temperature to reduce the alkali metal ion (Column 4, lines 13-15).

Yorikatsu is silent regarding an oxidizer comprising at least one vanadate with an alkali metal ion as a counter cation (claim 1); wherein the vanadate is expressed by a chemical formula  $RVO_3$ , where R is at least one metal element selected from the group consisting of Na, K, Rb, and Cs (claim 2).

In the same field of endeavor of discharge tubes and generating agents, Tsutomu et al. teaches an oxidizer comprising at least one vanadate with an alkali metal ion as a counter cation (Paragraph 6, lines 3-7); wherein the vanadate is expressed by a chemical formula  $RVO_3$ , where R is at least one metal element selected from the group consisting of Na, K, Rb, and Cs (Paragraph 6, lines 3-7) in order to provide a device with a negative pole material with stable pole material to improve luminance and lifespan of the device (Paragraph 5)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the alkali generating agent of Yorikatsu with an alkali metal ion as a counter cation; wherein the vanadate is expressed by a chemical formula  $RVO_3$ , where R is at least one metal element selected from the group consisting of Na, K, Rb, and Cs in order to provide a device with a negative pole material with stable pole material to improve luminance and lifespan of the device as taught by Tsutomu.

**Regarding claim 3**, Yorikatsu teaches wherein the reducer is at least one selected from the group consisting of Si, Zr, Ti, and Al (Column 1, lines 40-41).

**Regarding claim 4,** Yorikatsu teaches the alkali metal generating agent being of a powder form. (Column 4, lines 47-50).

**Regarding claim 6,** Yorikatsu teaches (Figure 9) alkali metal generating device (10) generating an alkali metal used in formation of a photo-cathode (column 1, lines 40-45) photoelectron corresponding to incident light or a secondary-electron emitting (Column 12, lines 25-30) surface for emitting secondary electrons corresponding to an incident electron, said alkali metal generating device comprising: a case (10); a supply source (not shown) housed in the case (10) and comprising an alkali metal generating agent according to claim 1 (**see rejection claim 1**); and a discharge port (12, gaps) provided in the case (10) and adapted for discharging a vapor of the alkali metal generated in the supply source (not shown), from an interior space of the case (10) housing the supply source, toward the exterior of the case (10).

**Regarding claim 7,** Yorikatsu teaches wherein the case is made of a metal (Column 12, lines 3-5)

**Regarding claim 11,** Yorikatsu teaches comprising a glass ampule housing the entire case (Column 12, lines 30-33).

**Regarding claim 12,** Yorikatsu teaches a heating device for initiating the redox reaction of the alkali metal generating agent to generate the vapor of the alkali metal. (Column 12, lines 24-28) (*Examiner note: Prior art reference teaches two lead wires extend from the generators to provide heating for the agent.*)

**Regarding claim 13,** Yorikatsu teaches wherein the heating device comprises a high-

frequency supply for heating the alkali metal generating agent by high-frequency heating (Column 1, lines 45-50)

**Regarding claim 14**, Yorikatsu teaches A photo-cathode (Column 1, lines 25-30)

*(Examiner note : Photoelectric tube of prior art reference is a photocathode)* for emitting a photoelectron corresponding to incident light, said photo-cathode comprising the alkali metal generated from an alkali metal generating agent according to claim 1 (**see rejection claim 1**).

**Regarding claim 15**, Yorikatsu teaches a photo-cathode (Column 1, lines 25-30)

*(Examiner note : Photoelectric tube of prior art reference is a photocathode)* for emitting a photoelectron corresponding to incident light, said photo-cathode comprising the alkali metal generated from an alkali metal generating device according to claim 6 (**see rejection above for claim 6**).

**Regarding claim 16**, Yorikatsu teaches a secondary-electron emitting surface for emitting secondary electrons (Column 12, lines 25-30) corresponding to an incident electron, said secondary-electron emitting surface comprising the alkali metal generated from an alkali metal generating agent according to (**see rejection claim 1**).

**Regarding claim 17**, Yorikatsu teaches a secondary-electron emitting surface for emitting secondary electrons (Column 12, lines 25-30) corresponding to an incident electron, said secondary-electron emitting surface comprising the alkali metal generated from an alkali metal generating agent according to (**see rejection claim 6**).

**Regarding claim 25**, Yorikatsu teaches (Column 1, lines 25-30) a method of production of a photo-cathode comprising an alkali metal for emitting a photoelectron

corresponding to incident light Column 1, lines 25-30) , said method comprising the steps of: preparing an alkali metal generating agent according to claim 1, **(see rejection claim 1)** as a source of the alkali metal (Column 12, lines 15-20) heating the alkali metal generating agent; (column 12, lines 34-50) and guiding the alkali metal generated (Column 12, lines 54-60 by the heating of the alkali metal generating agent (Column 12, lines 60-65), to an area for formation of the photo-cathode (Column 1, lines 15-20).

**Regarding claim 26**, Yorikatsu teaches (Column 1, lines 25-30) a method of production of a photo-cathode comprising an alkali metal for emitting a photoelectron corresponding to incident light Column 1, lines 25-30) , said method comprising the steps of: preparing an alkali metal generating agent according to claim 6, **(see rejection claim 6)** as a source of the alkali metal (Column 12, lines 15-20) heating the alkali metal generating agent; (column 12, lines 34-50) and guiding the alkali metal generated (Column 12, lines 54-60 by the heating of the alkali metal generating agent (Column 12, lines 60-65), to an area for formation of the photo-cathode (Column 1, lines 15-20).

**Regarding claim 27**, Yorikatsu teaches (Column 1, lines 25-30) a method of production of a secondary-electron (Column 12, lines 25-30) emitting surface for emitting secondary electrons corresponding to an incident electron, comprising the steps of: preparing an alkali metal generating agent according to claim 1, **(see rejection claim 1)** as a source of the alkali metal (Column 12, lines 15-20) heating the alkali metal generating agent; (column 12, lines 34-50) and guiding the alkali metal generated .

(Column 12, lines 54-60 by the heating of the alkali metal generating agent (Column 12, lines 60-65), to an area for formation of the photo-cathode (Column 1, lines 15-20) to an area for formation of the secondary-electron emitting surface.

**Regarding claim 28**, Yorikatsu teaches (Column 1, lines 25-30) a method of production of a secondary-electron (Column 12, lines 25-30) emitting surface for emitting secondary electrons corresponding to an incident electron, comprising the steps of: preparing an alkali metal generating agent according to claim 1, (**see rejection claim 6**) as a source of the alkali metal (Column 12, lines 15-20) heating the alkali metal generating agent; (column 12, lines 34-50) and guiding the alkali metal generated (Column 12, lines 54-60 by the heating of the alkali metal generating agent (Column 12, lines 60-65), to an area for formation of the photo-cathode (Column 1, lines 15-20) to an area for formation of the secondary-electron emitting surface.

3. Claims 5 and 23 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727) as applied to claim 1 and in further view of Suzuki (Japanese Patent application 55-078436).

**Regarding claims 5** Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent set forth above (see claim 1). Yorikatsu as modified by Tsutomu et al. is silent regarding the alkali metal generating agent being formed in a pellet form having a predetermined shape (claims 5) by compression molding.

In the same field of endeavor of alkali generating agents and discharge tubes Suzuki teaches the alkali metal generating agent being formed in a pellet form having a

predetermined shape by compression molding (Page 5, lines 3-5) in order to provide a device so that it can be packed into a container, and be thoroughly degassed.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the alkali generating agent of Yorikatsu wherein the alkali metal generating agent being formed in a pellet form having a predetermined shape by compression molding in order to provide a device so that it can be packed into a container, and be thoroughly degassed as taught by Suzuki.

**Regarding claim 23**, Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent set forth above (see claim 1 and 16). Yorikatsu as modified by Tsutomu et al. is silent regarding electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface.

In the same field of endeavor of alkali agents and photosensitive devices, Suzuki teaches electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface (Page 5, lines 3-5) in order to provide a device with improved luminance through the secondary emission of electrons.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the alkali generating agent device of Yorikatsu wherein electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface in order to provide a device with improved luminance through the secondary emission of electrons as taught by Suzuki et al.

4. Claims 8-9 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727) as applied to claim 1 and in further view of Suyama et al. (US Patent 6,198,221 B1).

**Regarding claims 8-9,** Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent and device set forth above (see rejections claims 1 and 6). Yorikatsu teaches (Figure 3) wherein the case (10) is a hollow container of a metal having apertures (12, gaps) at both ends thereof (Column 5, lines 5-10). Yorikatsu as modified by Tsutomu et al. is silent regarding the discharge port in a side face; and lid members of a metal covering the respective apertures at the both ends of the hollow container (claim 8) wherein the apertures at the both ends of the hollow container are hermetically closed in a state in which the hollow container secures an interior space for housing the alkali metal generating agent, and wherein the discharge port is provided in at least one of the both ends of the hollow container hermetically closed (claim 9).

In the same field of endeavor of photosensitive devices, Suyama et al. teaches (Figure 2) the discharge port (32) in a side face; and lid members (21,31) of covering of metal the respective apertures at the both ends of the hollow container (10); wherein the apertures at the both ends of the hollow container are hermetically closed in a state in which the hollow container secures an interior space for housing (4) the alkali metal generating agent, and wherein the discharge port (32) is provided in at least one of the

both ends of the hollow container hermetically closed (32) in order to provide a device with a smaller size and easier assembly process (Column 1, lines 57-60).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Yorikatsu the discharge port in a side face; and lid members of a metal covering the respective apertures at the both ends of the hollow container wherein the apertures at the both ends of the hollow container are hermetically closed in a state in which the hollow container secures an interior space for housing the alkali metal generating agent, and wherein the discharge port is provided in at least one of the both ends of the hollow container hermetically closed in order to provide a device with a smaller size and easier assembly process as taught by Suyama et al.

5. Claim 10 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727) as applied to claim 1, in view of Suzuki (Japanese Patent application 55-078436). and in further view of Suyama et al. (US Patent 6,198,221 B1).

Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent and device set forth above (see rejections claims 1 and 6). Yorikatsu as modified by Tsutomu et al. is silent wherein the alkali metal generating agent is formed in a pellet form having a predetermined shape.

In the same field of endeavor of alkali generating agents and discharge tubes Suzuki teaches the alkali metal generating agent being formed in a pellet form having a

predetermined shape by compression molding (Page 5, lines 3-5) in order to provide a device so that it can be packed into a container, and be thoroughly degassed.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the alkali generating device of Yorikatsu wherein the alkali metal generating agent being formed in a pellet form having a predetermined shape by compression molding in order to provide a device so that it can be packed into a container, and be thoroughly degassed as taught by Suzuki.

Yorikatsu as modified by Tsutomu et al. and Suzuki is silent regarding wherein the case is comprised of a closed-end container of a metal having a recess for housing the alkali metal generating agent, and a lid member of a metal welded to the closed-end container in a state in which the lid member covers an aperture of the recess, and wherein the discharge port of the case is formed in a non-welded portion between the closed-end container and the lid member.

In the same field of endeavor of photosensitive devices, Suyama et al. teaches (Figure 2) the case is comprised of a closed-end container (10) of a metal having a recess (40) for housing the alkali metal generating agent, and a lid member (21) of a metal welded to the closed-end container in a state in which the lid member (21) covers an aperture (not shown) of the recess (40), and wherein the discharge port (32) of the case (10) is formed in a non-welded portion between the closed-end (21) container and the lid member (31) in order to provide a device with a smaller size and easier assembly process.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the alkali generating device of Yorikatsu wherein the case is comprised of a closed-end container of a metal having a recess for housing the alkali metal generating agent, and a lid member of a metal welded to the closed-end container in a state in which the lid member covers an aperture of the recess, and wherein the discharge port of the case is formed in a non-welded portion between the closed-end container and the lid member in order to provide a device with a smaller size and easier assembly process as taught by Suyama et al.

6. Claims 18, 20-22, and 29-31 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727) as applied to claim 1 and in further view of Bradley (U S. Patent 3,761,614)

**Regarding claims 18, 20, and 21**, Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent and device set forth above (see rejections claims 1 and 14). Yorikatsu as modified by Tsutomu et al. is silent regarding an electron tube comprising a photo-cathode (claim 18), or for collecting the photoelectron emitted from the photo-cathode and extracting the collected photoelectron as an electric current to the outside (claim 20); and wherein an image tube having at least a fluorescent screen for converting the photoelectron emitted from the photo-cathode, into light (Claim 21).

In the same field of endeavor of photo sensitive devices, Bradley teaches (Figure 1) an electron tube (1) comprising a photo-cathode (3), an anode (6) for collecting the

photoelectron emitted from the photo-cathode (3) and extracting the collected photoelectron as an electric current to the outside (Column 3, lines 10-16); and wherein an image tube (1) having at least a fluorescent screen (9) for converting the photoelectron emitted from the photo-cathode (3) into light in order to provide a device with improved lifespan of the luminous emitter and resolution in the picoseconds range (Column 1, line 35-40).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Yorikatsu with an electron tube comprising a photo-cathode or an anode for collecting the photoelectron emitted from the photo-cathode and extracting the collected photoelectron as an electric current to the outside and wherein an image tube having at least a fluorescent screen for converting the photoelectron emitted from the photo-cathode, into light in order to provide a device with improved lifespan of the luminous emitter and resolution in the picoseconds range as taught by Bradley.

**Regarding claim 22**, Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent and device set forth above (see rejections claims 1 and 14). Yorikatsu as modified by Tsutomu et al. is silent regarding a streak tube comprising: an accelerating electrode for accelerating the photoelectron emitted from the photo-cathode; a focusing electrode for focusing the photoelectron accelerated by the accelerating electrode; an anode having an aperture through which the photoelectron focused by the focusing electrode can pass; a deflecting electrode having a pair of electrode plates opposed to each other and adapted to be able to sweep the

photoelectron having passed through the aperture provided in the anode, in a predetermined direction by a predetermined deflection voltage applied between the pair of electrode plates; and a fluorescent screen for converting the photoelectron deflected by the deflecting electrode, into light.

In the same field of endeavor of photo sensitive devices, Bradley teaches (Figure 1) an electron tube (1) comprising a streak tube (Column 1, lines 10-15) comprising: an accelerating electrode (4) for accelerating the photoelectron emitted from the photocathode (3); a focusing electrode (5) for focusing the photoelectron accelerated by the accelerating electrode (4); an anode (6) having an aperture through which the photoelectron focused by the focusing electrode(5) can pass; a deflecting electrode (Figure 3, 80a and 80b) having a pair of electrode plates opposed to each other and adapted to be able to sweep the photoelectron having passed through the aperture provided in the anode (6), in a predetermined direction by a predetermined deflection voltage applied between the pair of electrode plates; and a fluorescent screen (9) for converting the photoelectron deflected by the deflecting electrode, into light (column 3, lines 25-30) into light in order to provide a device with improved lifespan of the luminous emitter and resolution in the picoseconds range (Column 1, line 35-40).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Yorikatsu with a streak tube comprising: an accelerating electrode for accelerating the photoelectron emitted from the photocathode; a focusing electrode for focusing the photoelectron accelerated by the accelerating electrode; an anode having an aperture through which the photoelectron

focused by the focusing electrode can pass; a deflecting electrode having a pair of electrode plates opposed to each other and adapted to be able to sweep the photoelectron having passed through the aperture provided in the anode, in a predetermined direction by a predetermined deflection voltage applied between the pair of electrode plates; and a fluorescent screen for converting the photoelectron deflected by the deflecting electrode, into light in to light in order to provide a device with improved lifespan of the luminous emitter and resolution in the picoseconds range as taught by Bradley.

**Regarding claims 29-31**, Yorikatsu as modified by Tsutomu et al. teaches the alkali metal generating agent and device set forth above (see rejections claims 1 and 6). Yorikatsu further teaches preparing an alkali metal generating agent as a source of the alkali metal (Column 12, lines 15-20) heating the alkali metal generating agent; (column 12, lines 34-50) and guiding the alkali metal generated (Column 12, lines 54-60 by the heating of the alkali metal generating agent (Column 12, lines 60-65), to an area for formation of the photo-cathode (Column 1, lines 15-20).

Yorikatsu as modified by Tsutomu et al. is silent regarding an electron tube comprising at least a photo-cathode (claims 9 and 30) wherein said electron tube comprises one selected from a photomultiplier tube, a photo-tube, an image tube, and a streak tube (claims 31).

In the same field of endeavor of photo sensitive devices, Bradley teaches (Figure 1) an electron tube (1) comprising at least a photo-cathode (3) wherein said electron tube comprises one selected from a photomultiplier tube, a photo-tube, an image tube,

and a streak tube (Column 1, lines 10-15) ) in to light in order to provide a device with improved lifespan of the luminous emitter and resolution in the picoseconds range (Column 1, line 35-40).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the device of Yorikatsu with an electron tube comprising at least a photo-cathode wherein said electron tube comprises one selected from a photomultiplier tube, a photo-tube, an image tube, and a streak tube in order to provide a device with improved lifespan of the luminous emitter and resolution in the picoseconds range as taught by Bradley.

7. Claims 19 and 32-34 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727) as applied to claim 1 and in further view of Bradley (U.S. Patent 3,761,614) as applied to claims 18, 20-22 and in further view of and in further view of Suzuki (Japanese Patent application 55-078436).

**Regarding claim 19**, Yorikatsu as modified by Tsutomu et al. and Bradley, teaches the alkali metal generating agent set forth above (see claim 1 and 16). Bradley further teaches an anode (6) for collecting the secondary electrons outputted from the electron multiplying part and extracting the collected secondary electrons as an electric current to the outside (Column 3, lines 15-20).

Yorikatsu as modified by Tsutomu et al. is silent regarding electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface.

In the same field of endeavor of alkali agents and photosensitive devices, Suzuki teaches electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface (Page 5, lines 3-5) in order to provide a device with improved luminance through the secondary emission of electrons.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the alkali generating agent device of Yorikatsu wherein electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface in order to provide a device with improved luminance through the secondary emission of electrons as taught by Suzuki.

**Regarding claims 32-34**, Yorikatsu as modified by Tsutomu et al. and Bradley teaches the alkali metal generating agent and device set forth above (see rejections claims 1 and 6). Yorikatsu further teaches preparing an alkali metal generating agent as a source of the alkali metal (Column 12, lines 15-20) heating the alkali metal generating agent; (column 12, lines 34-50) and guiding the alkali metal generated (Column 12, lines 54-60 by the heating of the alkali metal generating agent (Column 12, lines 60-65), to an area for formation of the photo-cathode (Column 1, lines 15-20). Bradley teaches wherein said electron tube comprises one selected from a photomultiplier tube, a photo-tube, an image tube, and a streak tube (Column 1, lines 10-15)

Yorikatsu as modified by Tsutomu et al. and Bradley is silent regarding an electron tube comprising an electron multiplying part comprised of one or more dynodes

each having a secondary-electron emitting surface for emitting secondary electrons (claims 32 and 33).

In the same field of endeavor of alkali agents and photosensitive devices, Suzuki teaches electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface (Page 5, lines 3-5) in order to provide a device with improved luminance through the secondary emission of electrons.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the alkali generating agent device of Yorikatsu wherein electron tube comprising an electron multiplying part comprised of one or more dynodes each having a secondary-electron emitting surface in order to provide a device with improved luminance through the secondary emission of electrons as taught by Suzuki.

8. Claim 24 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Yorikatsu et al. (US Patent 3,658,713) in view of Tsutomu et al. (Japanese Patent application 06-231727) as applied to claim 1 in view of Suzuki (Japanese Patent application 55-078436) and in further view of Bradley (U S. Patent 3,761,614). Yorikatsu as modified by Tsutomu et al. and Suzuki teaches the alkali metal generating device set forth above (see claim 1 and 23) . Suzuki is a photo-cathode (page 5, lines 5-8) for emitting a photoelectron corresponding to incident light, toward the electron multiplying part (page 5, lines 5-8).

Yorikatsu as modified by Tsutomu et al. and Suzuki is silent regarding an anode for collecting the secondary electrons outputted from the electron multiplying part and extracting the collected secondary electrons as an electric current to the outside.

In the same field of endeavor of alkali agents and photosensitive devices, Bradley teaches (Figure 1) an anode (6) for collecting the secondary electrons outputted from the electron multiplying part and extracting the collected secondary electrons as an electric current to the outside (Column 3, lines 15-20) in order to provide a device with more focused beams for a better image and accelerate electrons.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the alkali generating agent device of Yorikatsu wherein teaches an anode for collecting the secondary electrons outputted from the electron multiplying part and extracting the collected secondary electrons as an electric current to the outside in order to provide a device with more focused beams for a better image and accelerate electrons as taught by Bradley.

### ***Response to Arguments***

9. Applicant's arguments filed 07/21/2008 have been fully considered but they are not persuasive. Applicant first asserts that the examiner stating that the generating agents and discharge tubes are in the same field of endeavor was in error. The applicant then further uses this premise to assert that the secondary reference of Tsutomu is non-analogous art and one of ordinary skill would have no reason to look at this reference to modify the primary reference as presented by the examiner.

The examiner respectfully disagrees with the applicant on Page 3, paragraph 7, the applicant discloses that the alkali generating agent is used for secondary emission. In the Tsutomu reference, the material containing alkali is used as an electron emission material. Even though, they are used in different devices one active and the other being passive, one of ordinary skill in the art could use the teachings of Tsutomu to come up with the compound disclosed by the applicant. Furthermore, it is well known in the field of discharge tubes to have electron emitting material and secondary electron emitting in order to enhance luminance efficiency.

Furthermore in response to applicant's argument that Tsutomu is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as asserted above photocathodes, photomultipliers depend upon electron emission to function

properly and so do discharge tubes. Applicant seems to focus on Tsutomu as a primary reference when it is secondary to Yorikatsu. As the applicant asserted the negative pole (cathode) of Tsutomu was formed out of this material, but the applicant failed to point out as in Paragraphs 7-10 of the Tsutomu reference that this material is formed such that a more stable electron emitter is formed. Regardless of oxidation-reduction or applying voltage to generate electron emission, the reference still teaches on the composition of the material alkali material as a electron emitter.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Examiner believes that prima facie case of obviousness has been demonstrated and that all rejections are proper.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TRACIE Y. GREEN whose telephone number is (571)270-3104. The examiner can normally be reached on Monday-Thursday, 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571/272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

/Tracie Y Green/  
Examiner, Art Unit 2879

/Sikha Roy/  
Primary Examiner, Art Unit 2879